AMENDMENTS TO THE CLAIMS

1. (Currently amended) A functional fluid having improved viscosity and volatility control under conditions of high thermal stress comprising:

a) a base stock or base oil, said base stock or base oil having the properties of:

(a) a viscosity index (VI) of greater than 135~~130~~;

(b) a pour point of about -10C or lower;

(c) a ratio of measured-to-theoretical low-temperature viscosity equal to about 1.2 or less, at a temperature of about -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoull equation wherein said base stock or base oil is not a Group IV base stock or base oil;

(d) a Noack volatility of less than 15 weight percent; and

b) at least one additive.

2. (Currently amended) A functional fluid having improved viscosity and volatility control under conditions of high thermal stress comprising:

a) a base stock or base oil, said base stock or base oil having the properties of:

(i) a viscosity index (VI) of ~~about 130~~ 135 or greater;

(ii) a pour point of about -10C or lower;

(iii) a ratio of measured-to-theoretical low-temperature viscosity equal to about 1.2 or less, at a temperature of about -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoull equation;

(iv) a percent Noack volatility no greater than that calculated by the formula

$$-6.882\mathrm{Ln}(\mathrm{CCS@-35C}) + 67.647,$$

where CCS@-35C is the base oil CCS viscosity in centipoise, tested at -35C, and that value as used in the equation is less than 5500 cP and wherein said base stock or base oil is not a Group IV base stock or base oil;

(v) a Noack volatility of less than 15 weight percent; and

b) at least one additive.

3. (Currently amended) A lubricating oil having improved viscosity and volatility control under conditions of high thermal stress comprising:

a) at least one base stock or base oil wherein said base stock or base oil has a VI of at least ~~130~~ 135 produced by a process which comprises:

(i) hydrotreating a feedstock having a wax content of at least about 60 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;

(ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;

(iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-48, ZSM-57, ZSM-23, ZSM-22, ZSM-35, ferricrite, ECR-42, ITQ-13, MCM-71, MCM-68, beta, fluorided alumina, silica-alumina or fluorided silica alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or Group 10 noble metal; and

b) at least one additive.

4. (Currently amended) A functional fluid having improved viscosity and volatility control under conditions of high thermal stress comprising:

a) at least one base stock or base oil wherein said base stock has a VI of at least ~~130~~135, a pour point of about -10°C or lower, and a Noack volatility of less than 15 weight percent produced by a process which comprises:

(i) hydrotreating a lubricating oil feedstock having a wax content of at least about 50 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;

(ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;

(iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-22, ZSM-23, ZSM-35, ferrierite, ZSM-48, ZSM-57, ECR-42, ITQ-13, MCM-68, MCM-71, beta, fluorided alumina, silica-alumina or fluorided silica-alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal; (iv) hydrofinishing the product from step (3) with a mesoporous hydrofinishing catalyst from the M41S family under hydrofinishing conditions; and

b) at least one additive.

5. (Currently amended) A functional fluid having improved viscosity and volatility control under conditions of high thermal stress comprising:

a) at least one base stock wherein said base stock has a VI of at least ~~130~~ 135, a pour point of about -10°C or lower, and a Noack volatility of less than 15 percent produced by a process which comprises:

(i) hydrotreating a lubricating oil feedstock having a wax content of at least about 60 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;

(ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;

(iii) hydrodewaxing the liquid product with a dewaxing catalyst which is ZSM-48 under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal;

(iv) Optionally, hydrofinishing the product from step (3) with MCM-41 under hydrofinishing conditions; and

b) at least one additive

6. (Original) The functional fluid as in any one of claims 3, 4, or 5, wherein said feedstock is a synthetic gas to liquid feedstock.

7. (Original) The functional fluid as in any one of claims 3, 4, or 5, wherein said feedstock is made by a Fischer-Tropsch process.

8. (Original) A functional fluid of claims 1, 2, 3, 4 or 5 comprising at least one performance enhancing additive.

9. (Original) A functional fluid of claims 1, 2, 3, 4 or 5 comprising at least one performance enhancing additive where said performance enhancing additive is not a viscosity index improver.

10. (Currently amended) A method of improving circulating oil comprising using the functional fluid of claims 1, 2, 3, 4 or 5 ~~where said functional fluid is~~ as a circulating oil.

11. (Currently amended) A method of improving compressor oil comprising using the functional fluid of claims 1, 2, 3, 4 or 5 ~~where said functional fluid is~~ as a compressor oil.

12. (Currently amended) A method of improving an internal lubricant for sintered metal materials comprising using the functional fluid of claims 1, 2, 3, 4 or 5 ~~where said functional fluid is~~ as an internal lubricant for sintered metal materials.

13. (Currently amended) A method of making a functional fluid having improved viscosity and volatility control under conditions of high thermal stress comprising incorporating a base stock or base oil having the properties of

(a) a viscosity index (VI) of ~~130~~ 135 or greater,

(b) a pour point of -10C or lower,

(c) a ratio of measured-to-theoretical low-temperature viscosity equal to 1.2 or less, at a temperature of -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoull equation~~.~~

(d) a Noack volatility of less than 15 weight percent

wherein said base stock or base oil is not a Group IV base stock or base oil.

14. (Currently amended) A method of making a functional fluid having improved viscosity and volatility control under conditions of high thermal stress comprising incorporating a base stock or base oil having the properties of

(a) a viscosity index (VI) of ~~130~~ 135 or greater,

(b) a pour point of -10C or lower,

(c) a ratio of measured-to-theoretical low-temperature viscosity equal to 1.2 or less, at a temperature of -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoull equation, and

(d) a percent Noack volatility no greater than that calculated by the formula

$$-6.882\text{Ln}(\text{CCS@-35C}) + 67.647,$$

where CCS@-35C is the base oil CCS viscosity in centipoise, tested at -35C, and that value as used in the equation is less than 5500 cP, and

wherein said base stock or base oil is not a Group IV base stock or base oil.

(e) a Noack volatility of less than 15 weight percent.

15. (Original) A method of reducing the Noack volatility of a functional fluid comprising incorporating said base stock or base oil of any one of the claims 1, 2, 3, 4 or 5.

16. (New) A functional fluid of any one of the claims 1, 2, 3, 4 or 5 wherein the Viscosity Index (VI) is greater than 140.

17. (New) A functional fluid of any of the claims 1, 2, 3, 4 or 5 wherein the pour point is less than -20°C.